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ABSTRACT

The question "How should one decide which jobs are related to a training program?" must be answered directly and consistently before specialized training can be planned or evaluated. A conceptual framework is needed to provide a useful structure for thinking about the concept of training-related jobs, and certain issues must be resolved in identifying these jobs. A conceptual framework for thinking about training-related jobs must take into account a definition of vocational education, how individuals are changed by vocational education, the meanings of training-related jobs, and the characteristics of jobs relevant to vocational education. Issues to be considered in identifying training-related jobs include the meaning of training-related jobs, the starting and ending points of the vocational education program, the delimitations of the job, the dimensions of vocational education program descriptions, the dimensions of the job description, the stability of the vocational education program description, the stability of the job description, the classification of vocational education programs, and the classification of jobs. In addition, issues concerning the purpose of using the concept of training-related jobs must be considered. A good deal of reflection, therefore, is necessary before the words "training-related job" are used in a research study or evaluation report pertaining to vocational education. (KC)

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CRITICAL ISSUES IN IDENTIFYING TRAINING-RELATED JOBS FOR VOCATIONAL EDUCATION PROGRAMS

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by

George H. Copa[1]

That those leaving a vocational education program secure a job has consistently been accepted as an overall aim of vocational education. An additional refinement of this aim is that the job be one which is "related" to the type of training program which the former student left. This additional refinement to the aim of securing a job implies that vocational education programs, at least at some point, are designed to provide training which is specialized to a job or group of jobs.

When the intent of a vocational program is to provide specialized preparation for a job or group of jobs, then the aim of expecting program leavers to enter these training-related jobs becomes appropriate. The justification being that of efficiency -- presumably if resources are spent by both student and school in preparing the student for a specific job and then the student is either unable or does not want to secure a job of this kind (training-related job), then the resources invested have been wasted to the extent that the specialized training is not used. From an efficiency perspective in this situation, it would have been better for the student to have chosen a different educational program (i.e., one related to the job eventually entered) or not to have entered an educational program at all, since the student was evidently able to secure the chosen job without additional, specialized preparation.

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Importance of Identifying Training-Related Jobs

When the aim of vocational education is to provide more specialized training for a limited set of jobs or even a specific job as opposed to more general preparation of use in all jobs, then consideration of training-related jobs becomes important. First, in planning the vocational education program, it would then be important to identify the set of jobs for which the program is to provide an education. This delimitation of jobs would be needed in order to design an appropriate curriculum and secure relevant teachers and facilities. Another reason for pre-identifying the specific set of jobs for which an education is to be provided is in order to assess if there is a market (labor demand) for persons with this type of an education. Prespecification of the training-related jobs acknowledges which specific jobs should be examined in terms of likely opportunities for employment.

Second, it is important to identify training-related jobs for the purposes of evaluation -- when it becomes necessary to decide if the former student is in fact employed in a training-related job. This evaluative decision is appropriate for the efficiency reason already presented. Presumably the same set of jobs considered to be training-related during the planning phase of a program is appropriate to the evaluation phase.

Purpose of Study

The purpose of this study is to focus on the question, "How should one decide which jobs are related to a training program?" Somehow, this question must be answered directly and consistently before the aim of providing specialized training might be planned or evaluated with any sense of validity. The more specific questions to be addressed in focusing on the above general question are:

1. What conceptual framework could provide a useful structure for thinking about the concept of training-related jobs?
2. What issues must be resolved in identifying training-related jobs?
3. What are the alternative positions and their bases for each issue?
4. How may procedure for identifying training-related jobs be developed (critiqued) through consideration of the above issues.

Only the first two questions are dealt with in this paper.

A Conceptual Framework For Thinking About Training-Related Jobs

This section provides one way of thinking about the concept of a training-related job. As such, it identifies the major factors or variables important to the consideration of training-relatedness and the relationship among these factors. Much of the perspective provided here is drawn from an earlier report published as part of the Minnesota Research and Development Center for Vocational Education's program of studies dealing with improving the planning of vocational education (Copa, 1981).

Concept of Vocational Education

Vocational education training is posited here as a process....as a means to an end rather than an end in itself. As a process, vocational education is viewed as having its major impact on individuals as opposed to jobs. Individuals served as the major input to vocational education and are somehow changed while involved with vocational education. The end toward which vocational education is a means is the enhancement of the mutual satisfaction of the individual and society, in general, through the individual's participation in a work role.

Characteristics of Individuals Changed by Vocational Education

Individuals can increase their satisfaction in a work role through vocational education by exploring and identifying their needs, improving

their ability, changing their geographic location or changing the time at which they will be available for a particular kind of work. Assessment of satisfaction by individuals can take place along these four dimensions before entering a work role (i.e., while in school) or while in a work role and contemplating whether to stay or move to a different work role. Needs refer to the intrinsic and extrinsic motivational wants of an individual which can at least partially be filled by work (i.e., security, authority, creativity). Ability refers to cognitive, affective, and psychomotor tasks which an individual can perform or has the aptitude to perform as it relates to the world of work (e.g., make a butt weld, discipline a child, take a soil sample). The same individual will move through different levels of ability related to his/her work role over time. That is, at the pre-school and elementary age, the individual may be just beginning the exploration of tasks relevant to various occupations. Later on in life, the individual will reach higher levels of ability which are prerequisite to a job. Still later, the individual may need to increase his/her ability in a given area, learn abilities in a new area, or simply refresh the abilities he/she once had. Location refers to where the individual is geographically located. Time refers to when the individual is available to participate in vocational education, and eventually, when he/she will be ready to work. These four characteristics of an individual are most relevant when considering the way in which vocational education can change the behavior of an individual relative to his/her work role toward the end of increasing overall mutual satisfaction of individual and society. A fifth, somewhat different characteristic of an individual, but nonetheless relevant to the process of vocational education is the number of individuals with particular characteristics who are to be served by vocational education.

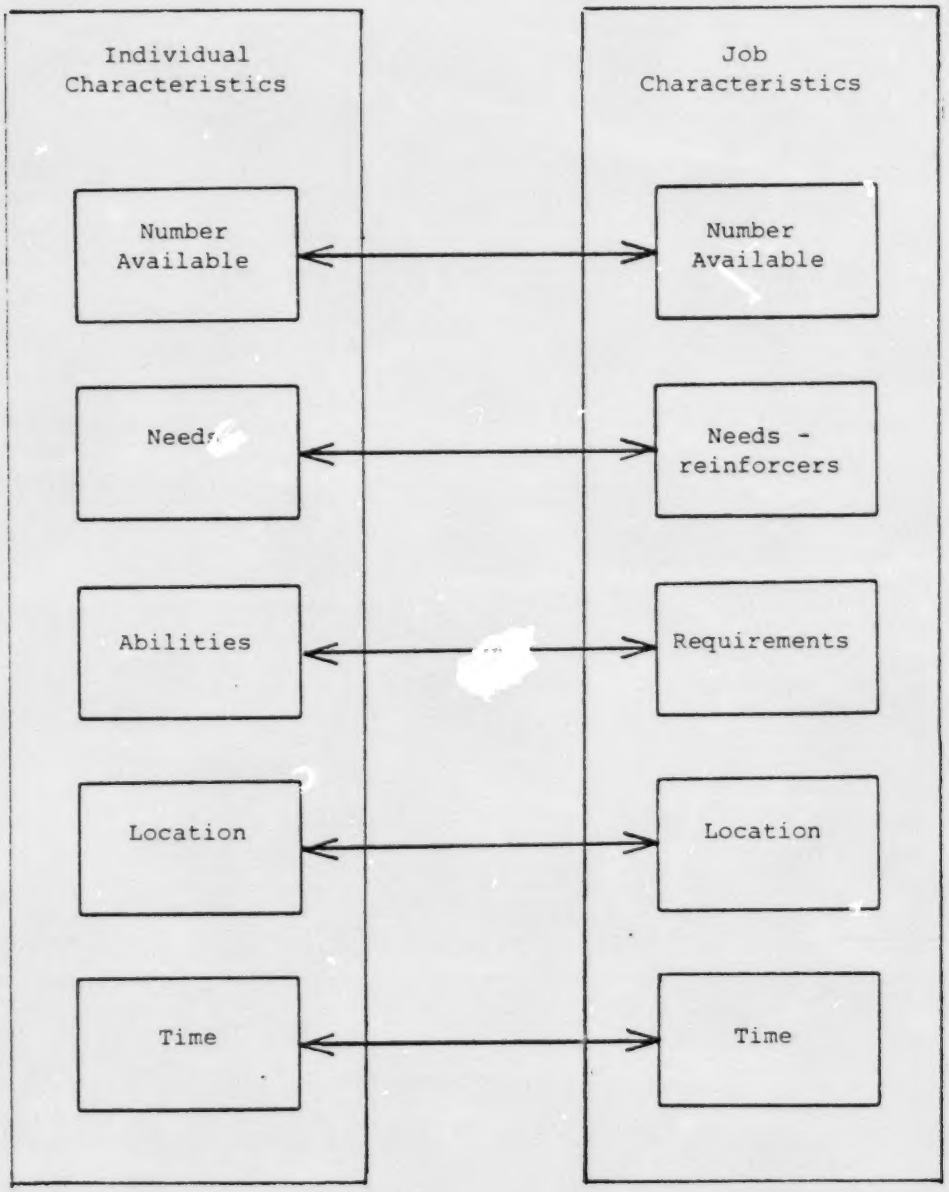

Figure 1. Relationship of characteristics of individuals changed by vocational education and characteristics of jobs relevant to vocational education.

exhaustive of all issues relevant to the task of identifying training-related jobs but form an initial list which can be reformulated and added to with more study. An abstract graphical figure will be used to help communicate each of the issues as they are presented for discussion.

Issues Concerning the Meanings of Training-Related Job

There are many aspects to the term "training-related job". The purpose of this section is not to produce a single sentence definition of training-related job (i.e., often termed an operational definition) but to describe a more comprehensive picture of just what is being impled when the term "training-related job" is being used in reference to vocational education. The issues concerning meaning are parallel for the vocational education program and the job.

Delimination of vocational education program. What is the starting and ending point of the vocational education program to be used in comparing a job in order to determine training-relatedness? Somehow the boundaries of the educational program must be prescribed. Is the educational program made up of one course, a series of courses, a series of independent study modules, and internship? Is the educational program to include only what happens in school? What about on-the-job training obtained before or while attending school or immediately after leaving school? Even within the education received in school, where does the vocational education program start and other education leave off? Just what makes up the vocational education program in question? Is it different for each individual? Each class? Each school? The focus of this issue is shown in Figure 3.

Characteristics of Jobs Relevant to Vocational Education

In order for society to maintain itself and grow (improve) requires certain functions to be accomplished. One of these functions has to do with work in the production of goods and services needed by the society. Society's work functions are made explicit in terms of labor market demand for jobs. The relevant dimensions of these jobs are number of positions, reinforcer patterns, requirements, location and time. Number of positions refers to the number of different work positions (jobs) of various kinds which society makes available in order to accomplish the production, processing and distribution of goods and services desired. Reinforcer patterns refer to the description of a job's potential at fulfilling individual needs (e.g., providing economic security, opportunity to exert authority, potential for using creativity). Requirements describe the skills, knowledge and attitudes needed to satisfactorily perform a given job. Location describes where, geographically, the position is located and time refers to when it is available to be filled. These five characteristics of a job are parallel to the characteristics of an individual most amenable to change by vocational education and thereby provide another part of the basis for planning and evaluating the effect of vocational education.

Conceptual Framework for Training-Relatedness

Combining the five characteristics described in the sections on characteristics of individuals changed by vocational education with the five characteristics of jobs relevant to vocational education results in the framework shown in Figure 1. This framework shows the parallel nature of the characteristics (e.g., needs versus need reinforcers, abilities versus requirements). Assessment of mutual satisfaction of individual and society with the individual's performance in a work role can be made by comparison

of the five characteristics at a point in time. It is assumed that increasing compatability of characteristics leads toward increased mutual satisfaction.

Vocational education enters this framework as a process located between the individual and job (work functions of society). Vocational education can also be thought of as mirroring the five relevant characteristics of individuals and jobs as shown in Figure 2. Using this latter framework, training-relatedness of a job can be envisioned as the relationship between the characteristics of the vocational education program and the characteristics of the job. In a sense, this is measure of the responsiveness of the vocational education program to the job (labor market demand).

Another notion stimulated by this framework is a similar relatedness concept which could be envisioned between the characteristics of individuals and the characteristics of the educational program -- a training-relatedness to individuals as opposed to jobs. This concept of relatedness would be especially relevant to the student counseling process before entering and during attending an educational program. The concept describes the potential responsiveness of the educational program to the individuals to be served by the program. Interestingly, a common dilemma in vocational education now becomes readily apparent--whether to be more responsive to job characteristics or individual characteristics when they are in conflict. Correspondingly, when there is high relatedness of eductional program characteristics and job characteristics resulting in societal satisfaction (with employers often as proxy judge) with the program and, at the same time, a high relatedness of educational program to individual characteristics resulting in student satisfaction with the program, the desired state of <u>mutual</u> satisfaction exists.

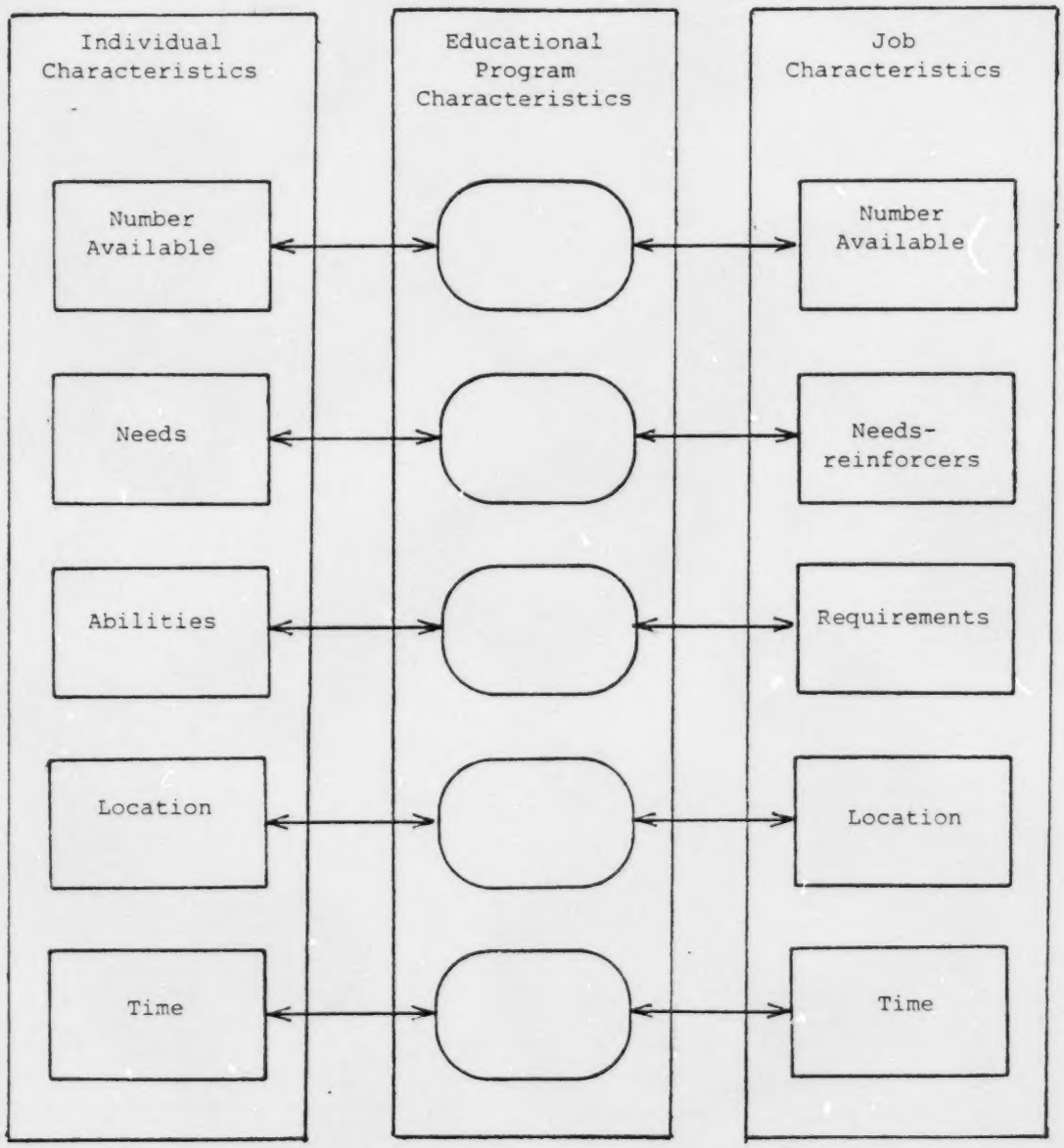

Figure 2. Relationship of vocational education program to characteristics of individuals and characteristics of jobs.

There is one more concept of relatedness which can be derived from the framework shown in Figure 2. This is the relationship between the characteristics of individuals (before, during and after the educational program) and the characteristics of the job when the comparison of characteristics is made before the individual enters the educational program. The contrast in individual and job is usually called a "needs" assessment. The comparison during the educational program is termed a "progress" report or grading. The comparison after the individual has left the educational program is often termed an "evaluation" and usually is accomplished through a follow-up study of students and/or their employers. This latter "evaluation" is often used to assess the effectiveness and efficiency of vocational education -- could the students secure and succeed in training-related jobs? Results of this evaluation can be used to validate previous judgements of what are training-related jobs -- provided the students and labor market cooperate (i.e., the students seek to enter these jobs and the labor market makes employment opportunities in these jobs available).

Critical Issues In Identifying Training-Related Jobs

This section will serve to present a set of critical issues which need to be resolved in defining which jobs are related to a vocational education program. As issues, they have more than one viable answer or response, each with some basis in reason. The issues cannot be ignored in developing and using a procedure to define training-related jobs -- either they must be dealt with directly or are resolved defacto through the procedures selected and the use of resulting information. The issues are divided into three basic categories of questions in terms of their relevance to meanings of "training-related jobs", ends served by using this term and the means used to identify training-related jobs. The issues identified are not

exhaustive of all issues relevant to the task of identifying training-related jobs but form an initial list which can be reformulated and added to with more study. An abstract graphical figure will be used to help communicate each of the issues as they are presented for decision.

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There are many aspects to the term "training-related job". The purpose of this section is not to produce a single sentence definition of training related job (i.e., often termed an operational definition) but to describe a more comprehensive picture of just what is being impled when the term "training-related job" is being used in reference to vocational education. The issues concerning meaning are parallel for the vocational education program and the job.

Delimination of Vocational Education Program. What is the starting and ending point of the vocational education program to be used in comparing a job in order to determine training-relatedness? Somehow the boundaries of the educational program must be prescribed. Is the educational program made up of one course, a series of courses, a series of independent study modules, and internship? Is the educational program to include only what happens in school? What about on-the-job training obtained before or while attending school or immediately after leaving school. Even within the education received in school, where does the vocational education program start and other education leave off? Just what makes up the vocational education program in question? Is it different for each individual? Each class? Each school? The focus of this issue is shown in Figure 3.

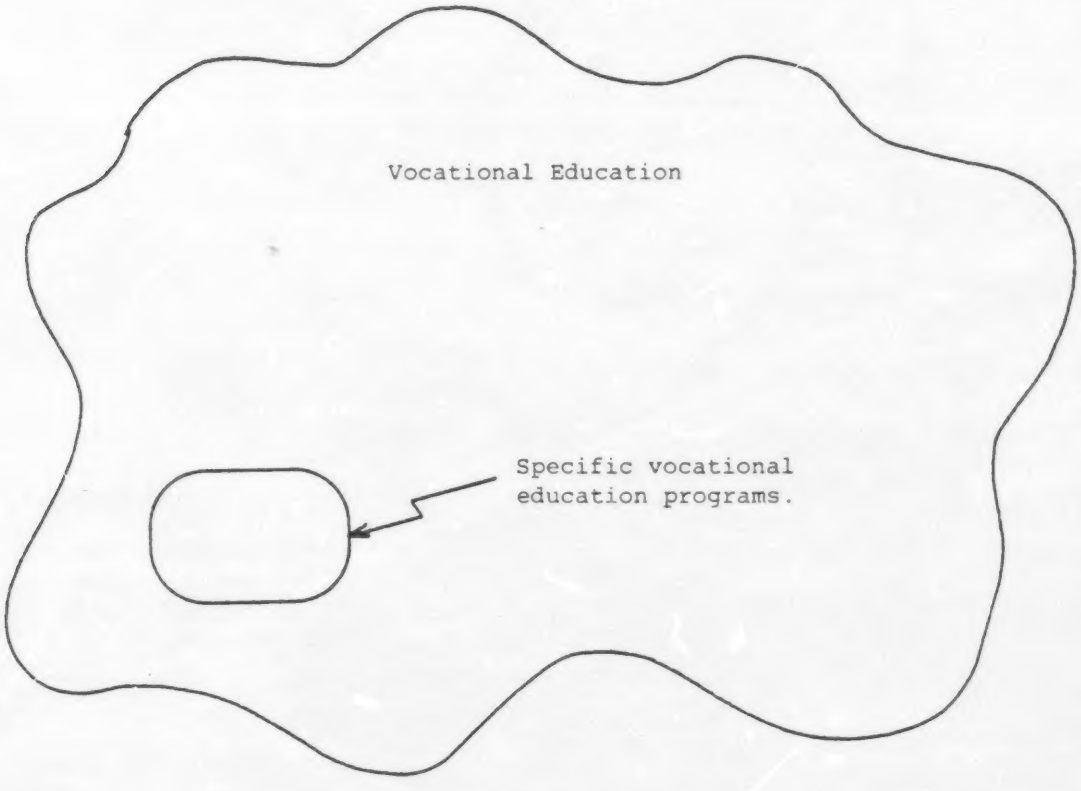

Figure 3. Delimiting the vocational education program.

Delimitation of job. As with the issue of delimiting a vocational education program, there is a corresponding issue in defining a job. What are the starting and ending points for the activities to be identified as "job" for the purposes of identifying training-related jobs. Are jobs made up of a series of tasks or duties? If so, what are the common tasks or duties that uniquely go together to make up a job? How is the line to be drawn between one job and another? The intent of this issue is depicted in Figure 4.

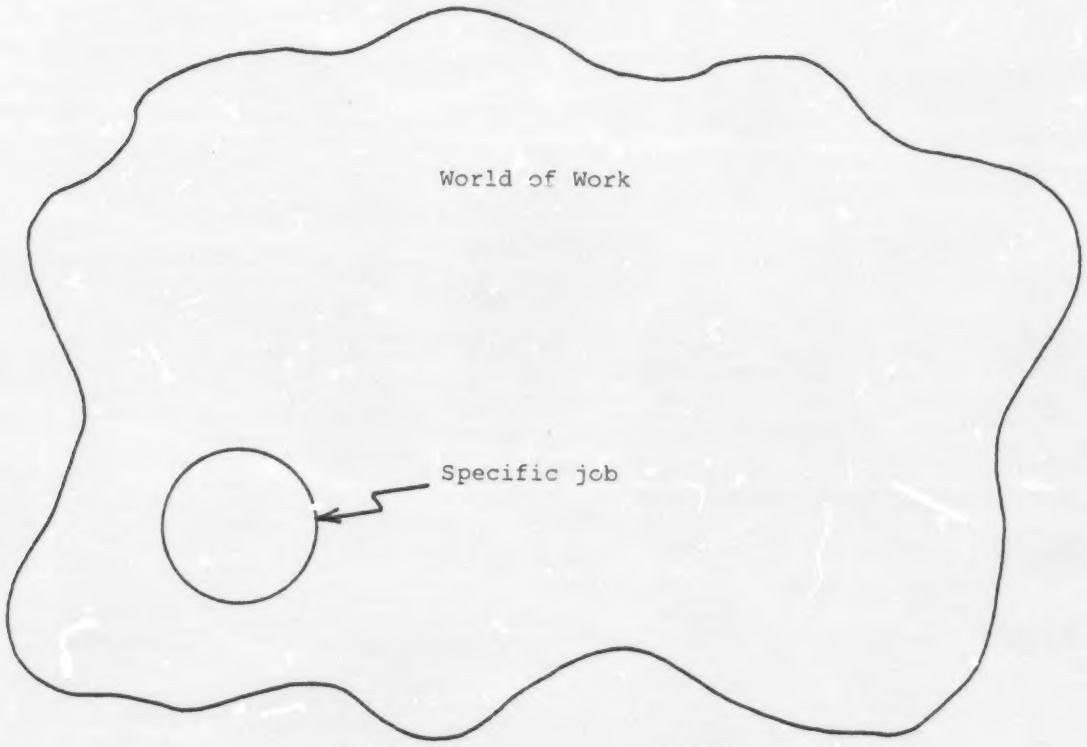

Figure 4. Delimitation of job.

Dimensions of vocational education program description. How is the vocational education program to be described for purposes of determining which jobs are training-related? According to the conceptual framework provided earlier, these dimensions could include the extent to which the program addresses a number of jobs, various kinds which need to be filled, job requirements and job need reinforcers as well as the extent to which the program is sensitive to the time when the jobs will be available to be filled and where these jobs will be located. The potential dimensions of a vocational education program relevant to defining training-related jobs are shown in Figure 5. Are all or selected dimensions to be used?

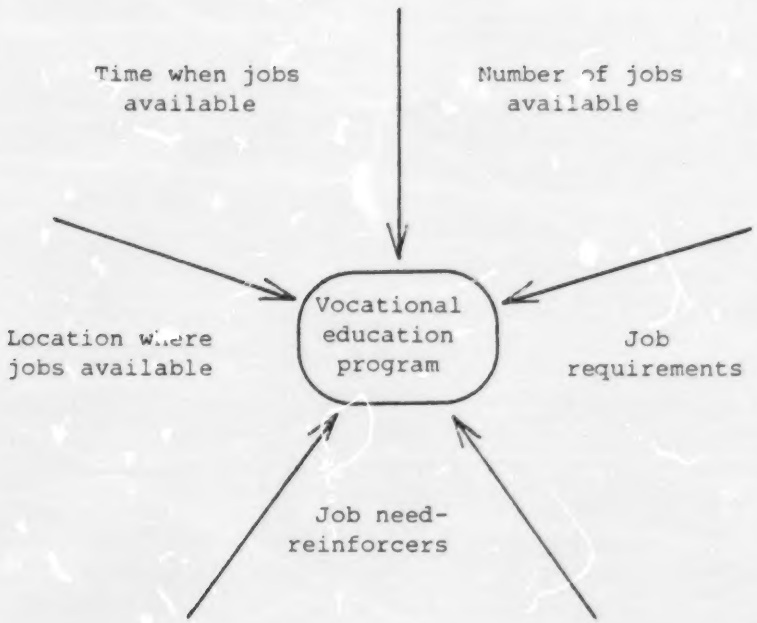

Figure 5. Dimensions of vocational education program description.

Dimensions of job description. And, how is the job to be described? Turning again to the conceptual framework presented earlier, jobs were described along five dimensions pointed out in the previous section on vocational education program description. These dimensions as shown in Figure 6 are number of jobs available, job requirements, job need reinforcers, location of jobs and time of availability. Again, the issue is, "Are all of these dimensions relevant when defining training-related jobs?

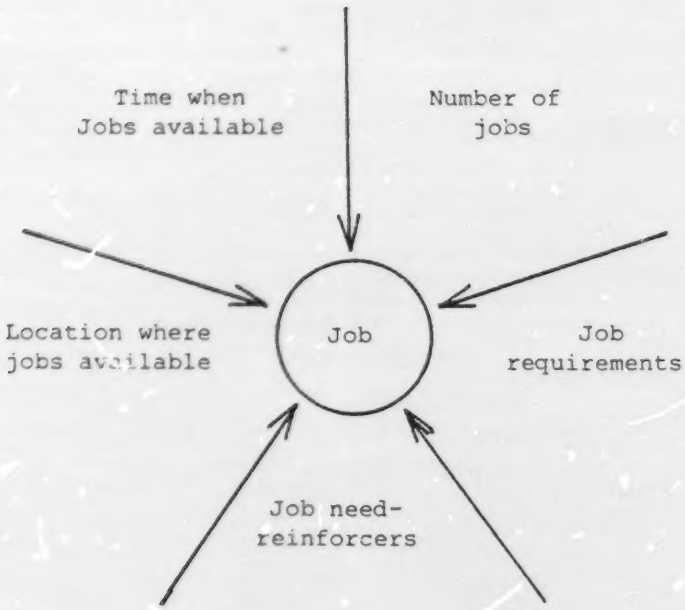

Figure 6. Dimensions of job description

Stability of vocational education program description. How should the common knowledge that training programs vary in each of the dimensions of its description from one year to the next, from school to school, from teacher to teacher (even within schools) from class to class (even for the same teacher) be treated for purposes of defining training-related jobs? These variations go on all the time and may be substantial for programs with the same titles and general description. This issue is complicated by the emergence of individualized vocational programs where the student can "pick and choose" the aspects to be included in their own unique program -- here the notion of standardized vocational education programs almost completely disintegrates. And, how should further discrepancies between what is portrayed in the vocational education program descriptions and what

is actually taught and between what is taught and what is actually learned be dealt with in defining training-relatedness? This issue is depicted in Figure 7.

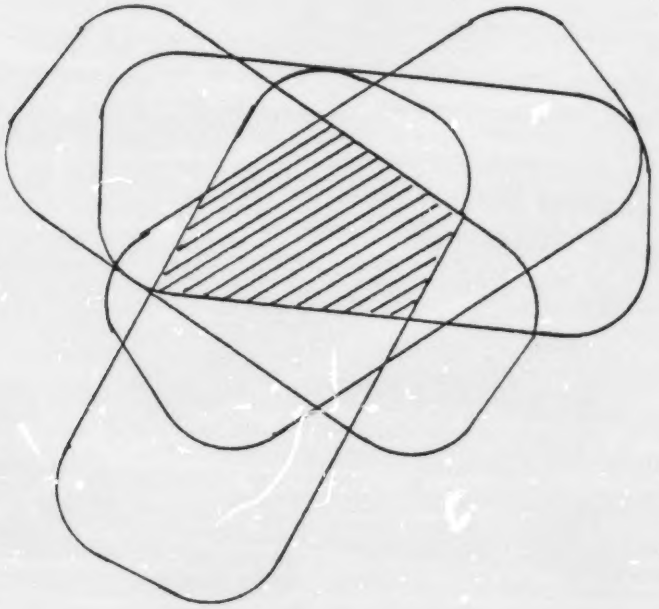

Figure 7. Stability of vocational education program description.

Stability of job description. As with the vocational education program description there is also an issue of the stability of a job description. Again there is common knowledge that jobs with the same titles and even general descriptions vary from one type of firm to another, between firms producing the same goods and services from one geographic location or time period within the same firm, and within job positions in the same plant. There may also be a discrepency between the job description and what is actually done on the job. How are these unstable aspects of a job description to be reconciled for the purposes of defining training-related jobs? This issue is presented graphically in Figure 8.

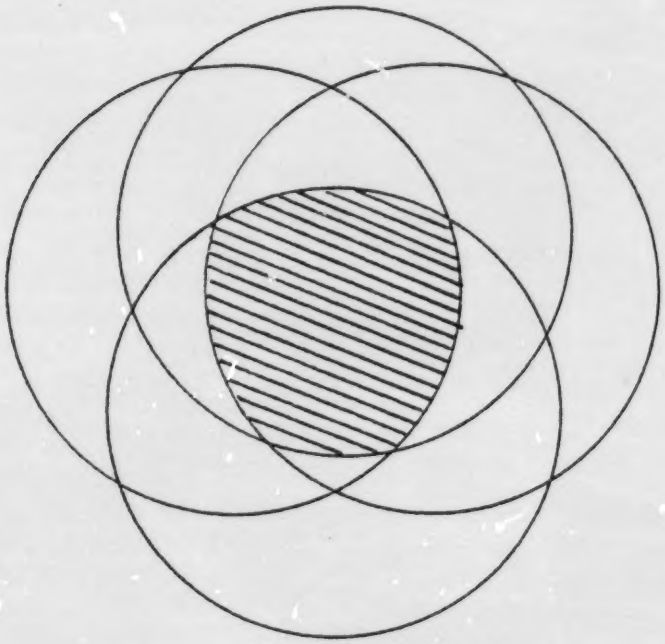

Figure 8. Stability of job description.

Classification of vocational education programs. Given some description of vocational education programs (which is properly delimited and stable), the next issue in pursing meanings is that of classification. Classificaiton becomes useful if there is to be any grouping or aggregation for communication purposes (as in planning or evaluating or providing public information; if there is to be grouping, how should it be done for purposes of communicating training-relatedness of jobs? Which dimensions of the program should be used in the classification scheme? How should the categories be labeled? How many categories are necessary? The issue of classification of vocational education programs is shown in Figure 9.

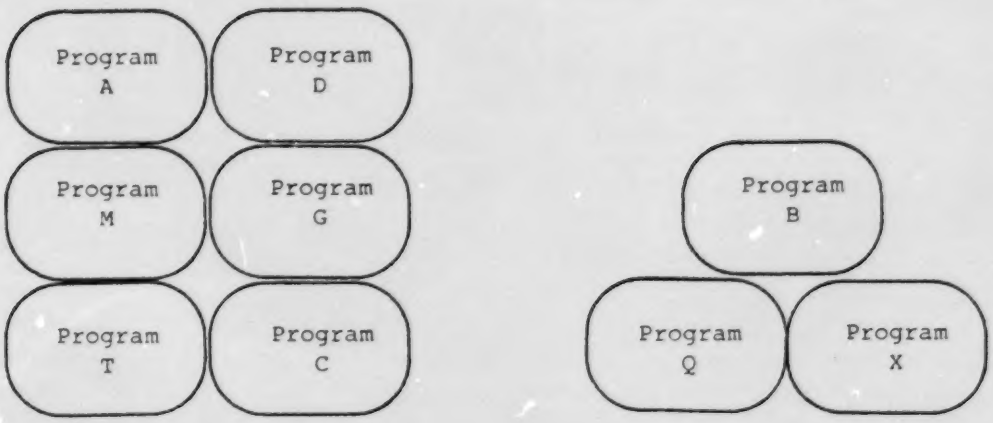

Figure 9. Classification of vocational education programs.

Classification of jobs. Classification of jobs is also necessary for aggregation and subsequent communication purposes. How are jobs to be classified for facilitating the valid communication of the training-relatedness of jobs? Should jobs be categorized by occupation (similarity in tasks performed on the job) or industry (similarity in goods and services produced by firms in which jobs are found)? How should the level of job requirements be taken into account? What is an appropriate scheme for classifying jobs by need reinforcers provided, by geographic location, by time when jobs will be available? How are these multiple dimensions of a job description to be combined in a classification scheme? The issue of classification of jobs is shown in Figure 10.

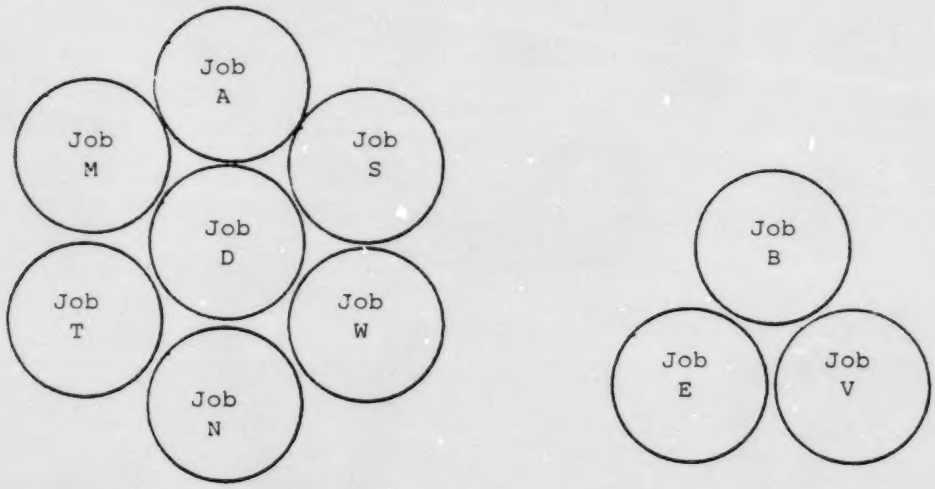

Figure 10. Classification of jobs.

Issues Concerning the Ends Served by Using the Concept of Training-Related Jobs

Before automatically (without serious thought) accepting the notion of training-related jobs as being relevant to planning and evaluating vocational education program (i.e., the proportion of former students entering training-related jobs), it might be well to consider whose interests are being served by this concept and what values are either being supported or negated in the process. What follows are some of the issues which seem to be relevant to thinking about the ends served by using the idea of training-related jobs in connection with vocational education.

Vocational education as specific or general. The very use of the concept of training-related jobs implies that some jobs should be more related than others to a particular vocational education program. In turn, this implies

that it is more desirable, at least in some situations, for eductional programs to be specialized rather than providing general preparation which is transferrable to all or at least a large number of different jobs. What are the "situations" where training-relatedness is an important consideration to vocational education and when it is not. For example, a vocational education program with an aim of job orientation or exploration might well consider training-relatedness to a wide variety of jobs in the planning phases but not expect students to necessarily enter trianing-related jobs (because they found during exploration that they did not like or could not qualify for the job). The issue is "If specialization is started in an educational program, where is it to stop?" When is "enough" in the best interests of the student and the larger society? Is a separate education program needed for each job, however jobs are described? If not, to what extent should jobs be grouped or clustered toward achieving the ends desired of vocational education? An extension of this issue is to question the degree to which it is desirable for learning in vocational education to transfer to other life roles outside of the work role. The answer to these questions will necessitate the taking of a reasoned position on the ends to be served or the mission of vocational education. One position on this mission was presented earlier in this report and described in terms of increasing the mutual satisfaction of individual and society as it relates to the work function. The issue of specific versus general education for vocational education is graphically illustrated in Figure 11.

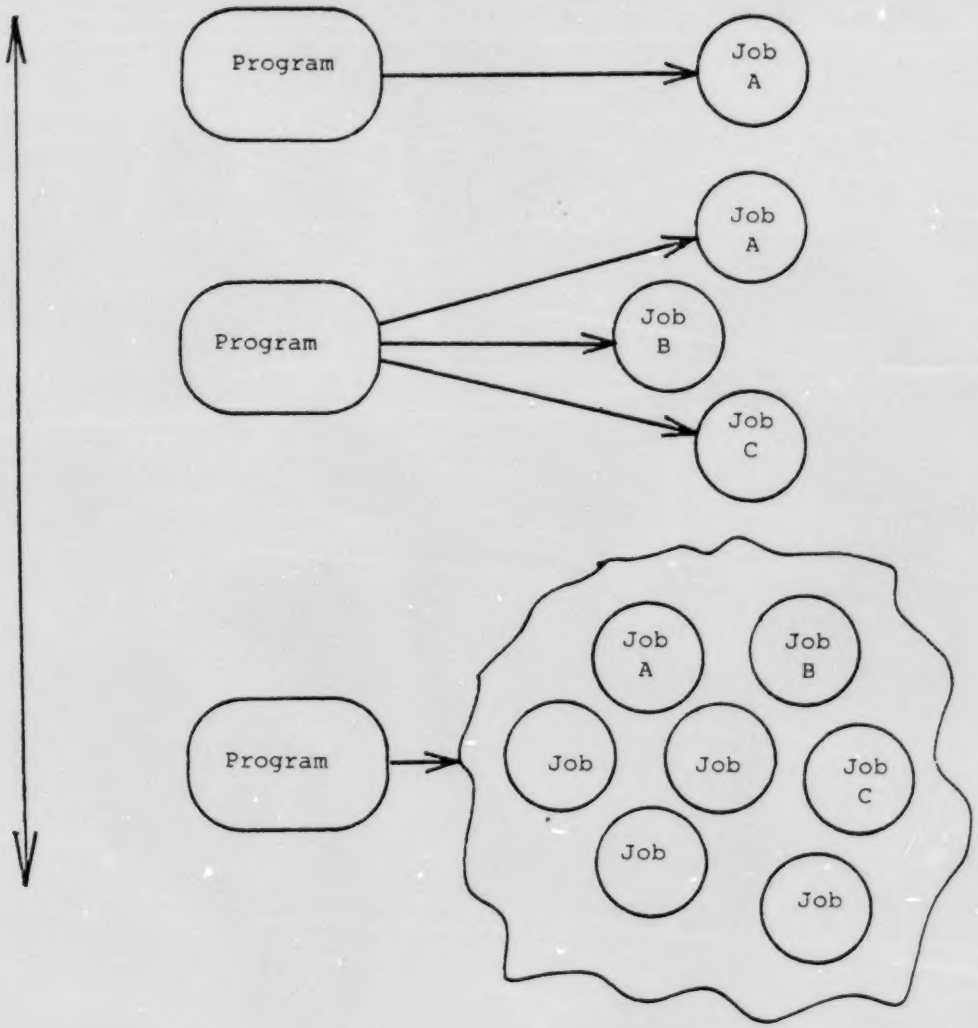

Figure 11. Vocational education vs. specific or general education.

Value of job. In the conceptual framework presented earlier, a job's description is assumed to be a direct description of a function that society, in general, considers acceptable and wishes to have done and is therefore willing to reward. Society is a convenient abstraction set up for the purpose of discussing the interests of all individuals taken collectively. Vocational education is a form of education conceived by these individuals. Might it not be part of the role of vocational educa-

tion to raise questions about the desirability of some jobs as the basis for an educational program (from the interests of these same individuals taken collectively and the values they share about what constitutes the "good life"). Some jobs or even aspects of many jobs may be degrading to individuals because of working conditions, the nature of tasks to be done, or the equity of the rewards for doing the job. Or at least, it may not pay to invest time by student or school in preparing for some jobs through a formal educational program because there is no margin of benefit to specialized education in terms such as pay or opportunity to get the jobs. The issue relating to the value of the job is shown in Figure 12.

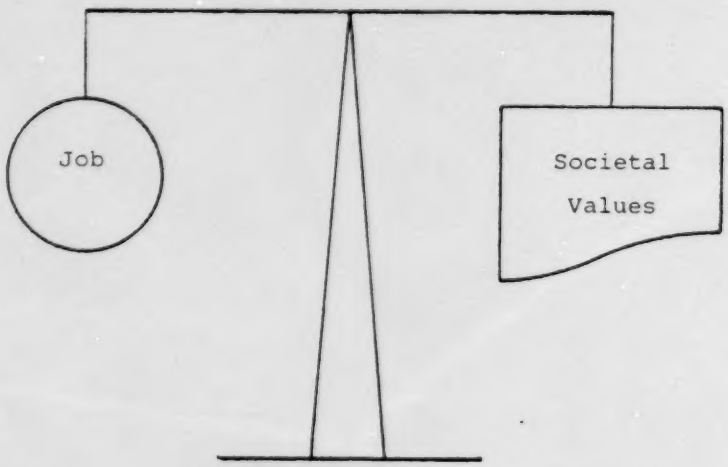

Figure 12. Value of jobs vs. justification for educational program

Job description as an accurate portrayal of societal needs. The issue here is whether or not the job description as it is finally communicated to the educational program and potential job holders is authentic in terms of societal needs. Or have societal wishes somehow been thwarted by employers, thereby resulting in exploitation of employees. This issue is shown as Figure 13.

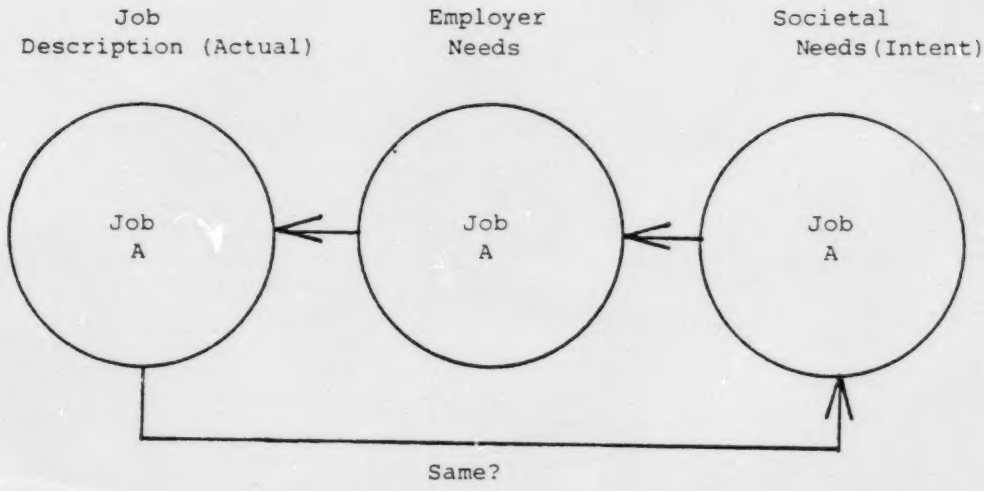

Figure 13. Job description vs. an accurate protrayal of intended social needs.

Program responsiveness to individual and job. How responsive should the vocational education program be to the job? Does this responsiveness come at the expense of being responsive to potential students? Might not too much emphasis on identifying training-related jobs in the planning and evaluation of vocational education programs "tip the scale" in the favor of the job? But then perhaps the emphasis is necessary if the ultimate criteria for vocational education is that the student be able to get a training-related job. Who should be considered most adaptable in the labor market -- individual (potential job seeker), or employer (job description), or the vocational education program? Who should change? Does it always have to be the individual? Too great an emphasis on a static "matching mentality" (of individual, program and job) may allow vocational education to easily fall into the stance that the job description is fixed and that the educational program and individual are the aspects which most need to change (adapt to the environment). However, it may well be that from an

equity of opportunity or justice perspective, it is the job description or hiring practices which need to be adapted to better fit the individual. If the public schools are to play major role in social reform as well as inculcation, then the job description cannot always serve as the boundaries or parameters for an educational program. The issue of balance in responsiveness for the vocational education program between individual and job is presented in Figure 14.

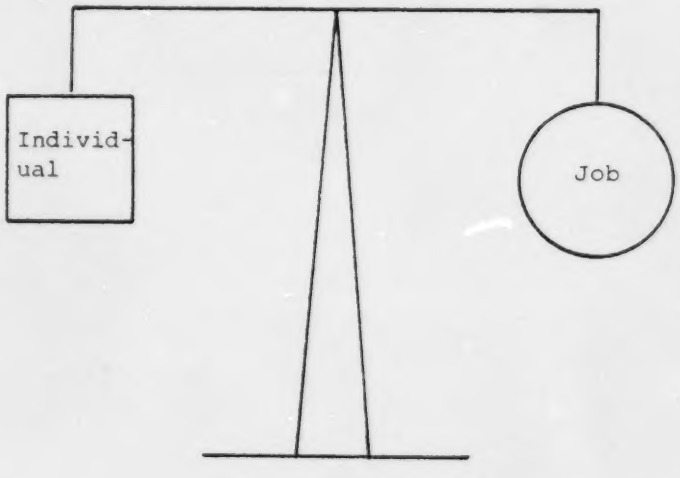

Figure 14. Vocational education program responsiveness to characteristics of individuals and job.

Issues Concerning the Procedure or Means for Identifying Training-Relatedness

Given consideration to the meaning held for training-related jobs and the desired ends for vocational education (and how these can be facilitated through using the concept of training-related job) then it is in order to think about the procedures or means for identifying training-related jobs. The issues presented in this section deal more specifically with the technical aspects of the problem of relating vocational education to jobs.

Start with vocational education or job. In trying to identify jobs related to a given vocational education program, should the process be started by first measuring the educational program or job? Depending on where the process is initiated, the results may well be different. Starting with the educational program, one is likely to find several jobs related to the educational program which vary in degree of relatedness from very close to not very much. Also starting with the educational program will likely mean using a set of learning objectives as a basis or scale for measuring relatedness (i.e., is knowing these learning objectives of benefit in performing the job). Alternatively by starting with a job, one is likely to find several related vocational education programs, some of which relate very closely and some which provide only partial preparation for the job. Also, in starting from a job perspective, one is likely to start with a lot of tasks performed on the job or needs-reinforcers describing the job and to use these lists in examining vocational education programs. The list of learning objectives and the list of tasks may be quite different in their content and organization. The issue of starting with vocational education program or job is shown in Figure 15.

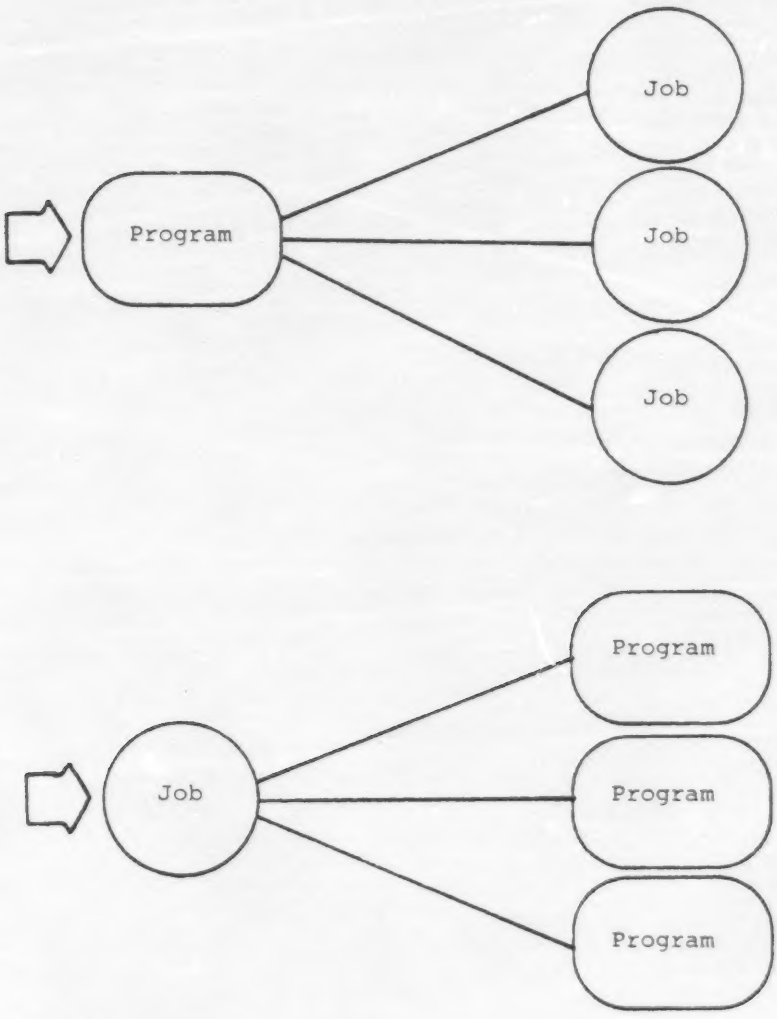

Figure 15. Starting with vocational education program or with job.

How much is enough to call "related". In examining the relationship between an educational program and jobs, just when is there enough evidence to classify the program and job as being related? The degree of relatedness might be thought of on a scale (continuum) from zero (no relation) to one (perfect relation). Where along this scale should the line be drawn between what will be called related and unrelated jobs? Might the line be drawn in different places for different purposes? How precisely does rela-

tedness have to be communicated -- two categories, five categories, one hundred categories? The use of "how much is enough" to be called related is depicted in Figure 16.

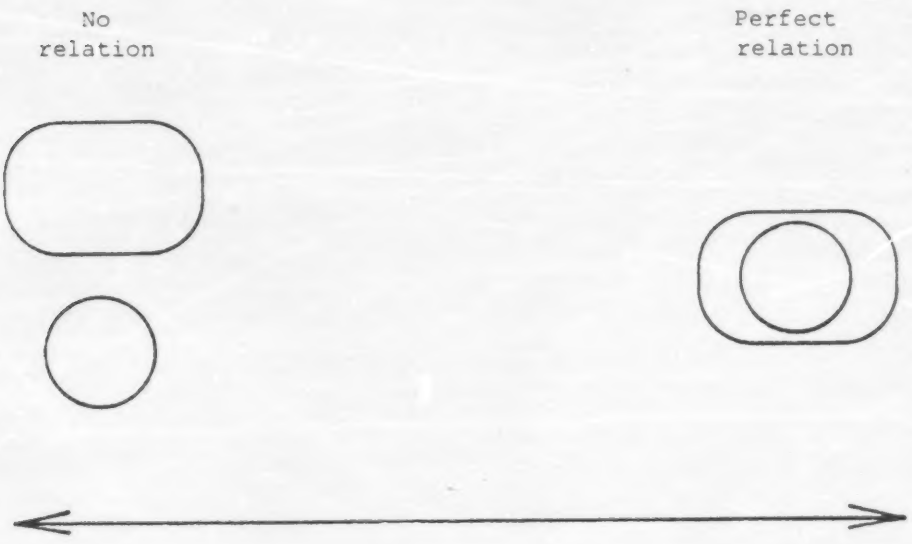

Figure 16. How much relationship is enough to be training-related.

Common denominator for vocational education program and job. The most difficult question in the process of identifying training-related jobs is the working out of a way to translate the descriptions of vocational education programs and jobs. Should the language of the educational program or job description be used or is there yet another language which would be more useful as a common denominator of program and job? Even with an agreed upon language for the dimension of "abilities - requirements" such as using tasks, one faces the issues of level of training on the task (e.g., familiar to supervise others) and importance of task (e.g., frequency of use, proportion of time). The issue of a common denominator is shown in Figure 17.

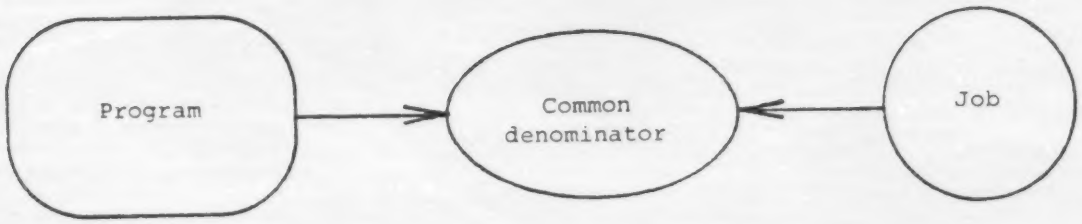

Figure 17. Common denominator for vocational education program and job.

Collecting information on training-relatedness. How does one find out exactly what is taught in a vocational education program and exactly what are the characteristics of a job? Do you analyze course outlines and job descriptions, observe classes and job performance, or interview teachers, students, and administrators and employees and employers? Do you use a checklist, questionnaire, unstructured interview schedule? How do you validate and check reliability of your information? Besides how and from whom you collect information concerning relatedness, when should the information be collected? Before the vocational education program starts? Periodically thereafter? If for evaluation purposes you need information on the proportion of students entering training-related jobs, do you focus on the first job entered, first two jobs, jobs held in first two years, or entire career (perhaps depends on entry versus advancement emphasis to program)? In this instance, how do you deal with the situation where the student is qualified for training-related jobs but for some reason choses not to enter these jobs. The issue of collecting training-relatedness information is presented in Figure 18.

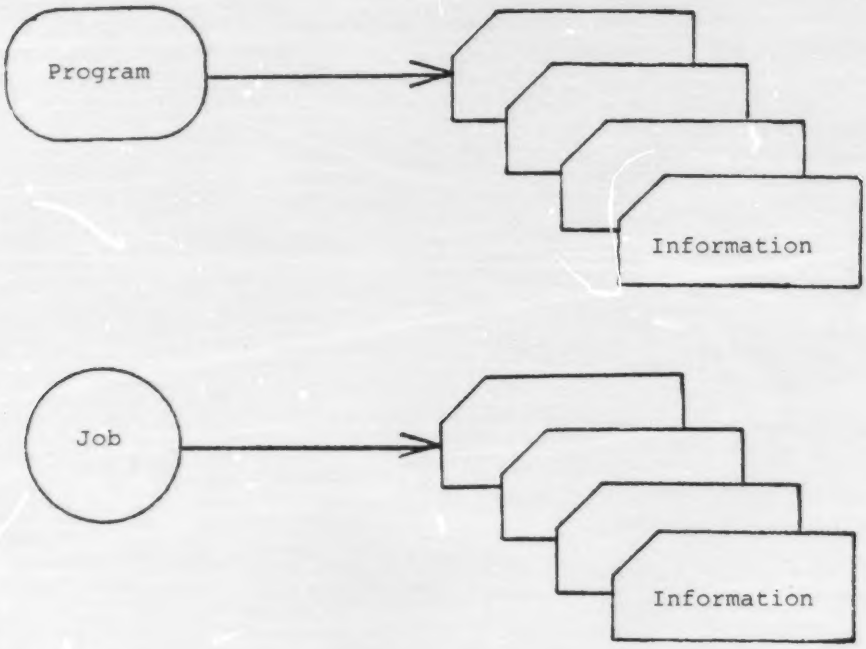

Figure 18. Collecting information on training-relatedness.

Summary

As should now be apparent, a good deal of reflection might be in order before uttering the words "training-related job" in a research study or evaluation report pertaining to vocational education. A similar process of identifying issues might well be done with several other concepts we commonly use unconsciously in vocational education (e.g., special needs students, equality of educational opportunity, job satisfaction, vocational). The next stage of this study will focus on examining each of the issues raised above pertaining to training-relatedness in terms of alternative perspectives and their rationales.

References

Copa, G. H., Towards a Strategy for Planning Vocational Education. Minneapolis, Minnesota: University of Minnesota, Research and Development Center for Vocational Education, August, 1981.